

USING TIME AND/OR POWER MODULATION TO ACHIEVE GRAY-  
SCALING IN OPTICAL MASKLESS LITHOGRAPHY

ABSTRACT OF THE DISCLOSURE

In lithography applications, it is desirable to control, for example, a position or width of a printed line. An effective method of controlling these patterns and their resolution is by having as many grayscale levels as possible. The present invention comprises methods of grayscaling wherein modulation of the exposure time increases the number of grayscale levels on an object. In addition, the present invention comprises methods of grayscaling wherein modulating the power of an exposure beam provides additional grayscale levels.